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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/762,073	01/20/2004	Terry C. Tomt	024.0186 (03-0732)	4585
55397 7590 08/22/2007 INGRASSIA FISHER & LORENZ, P.C. (BOEING) 7150 E. CAMELBACK RD. SUITE 325 SCOTTSDALE, AZ 85251			EXAMINER MUI, CHRISTINE T	
			ART UNIT 1709	PAPER NUMBER
			MAIL DATE 08/22/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/762,073

Applicant(s)

TOMT ET AL.

Examiner

Christine T. Mui

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-52 is/are pending in the application.
- 4a) Of the above claim(s) 45-52 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12, 15 and 18-44 is/are allowed.
- 6) ☒ Claim(s) 1-11, 13, 14, 16 and 17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>See Continuation Sheet</u> . | 6) <input type="checkbox"/> Other: _____  |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :20 January 2004; 23 September 2005 .

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-44, drawn to method, classified in class 73, subclass 762.
  - II. Claims 45-52, drawn to product, classified in class 252, subclass 79.2.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product. See MPEP § 806.05(h). In the instant case the product as claimed can be used in a materially different process of using that product.
3. The product as claimed in the instant application can be used in a different process such as etching a substrate.

Restriction for examination purposes as indicated is proper because all these inventions listed in this action are independent or distinct for the reasons given above and there would be a serious search and examination burden if restriction were not required because one or more of the following reasons apply:

- (a) the inventions have acquired a separate status in the art in view of their different classification;
- (b) the inventions have acquired a separate status in the art due to their recognized divergent subject matter;
- (c) the inventions require a different field of search (for example, searching different classes/subclasses or electronic resources, or employing different search queries);
- (d) the prior art applicable to one invention would not likely be applicable to another invention;
- (e) the inventions are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

**Applicant is advised that the reply to this requirement to be complete must include (i) an election of a invention to be examined even though the requirement may be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.**

The election of an invention may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected invention.

If claims are added after the election, applicant must indicate which of these claims are readable upon the elected invention.

Should applicant traverse on the ground that the inventions are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

4. During a telephone conversation with Mark Takahashi on 23 July 2007 a provisional election was made without traverse to prosecute the invention of Group I, method, claims 1-44. Affirmation of this election must be made by applicant in replying to this Office action. Claims 45-52 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-2 are rejected under 35 U.S.C. 102(e) as being anticipated by USP 2003/0230719 to Shelley (submitted on the Information Disclosure Statement on 23 September 2005; herein referred "Shelley").

Regarding claims 1 and 2, the reference Shelley discloses a method for determining the thickness of a sol-gel coating formed upon a metallic or metal substrate, which is interpreted by the examiner that a metallic substrate can be aluminum (see abstract, [0005], and claims 6 and 11).

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3. Claim 13 is rejected under 35 U.S.C. 102(b) as being anticipated by XP-002329830 (submitted as Foreign Prior Art as English Abstract Translation of SU 1 368 719 A submitted on the Information Disclosure Statement on 23 September 2005).
4. Regarding claim 13, the reference XP-002329830 discloses a method for the quality control of aluminum coatings on steel where an aluminised steel sample or article is immersed in a solution of 10% sodium hydroxide. Once the sample is immersed in the solution for a period of time the outer layer is removed. The presence of an intermetallic layer is determined visually according to its colour (see abstract). It is interpreted by the examiner that the solution of sodium hydroxide is contained in a receptacle or container to hold the solution.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.



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7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 3, 5, 7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shelley as applied to claim 1 above, and further in view of USP 5,562,989 to Statz (submitted on the Information Disclosure Statement on 23 September 2005; herein referred "Statz").

Regarding claim 3, Shelly discloses the claimed invention except placing a test specimen in an unknown coating in a solution. Statz teaches that it is known in the art to immerse a coated plaque in a 5% or 10 % aqueous sodium chloride solution (see column 5, lines 8-9). It would have been obvious to one having ordinary skill in the art

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at the time the invention was made to place a testing plaque in a known solution to have a test specimen and later compare to a control specimen to determine the content and presence of a sol-gel coating.

Regarding claims 5 and 7, Shelley discloses the claimed invention except for observing for a length of time for the solution to become opaque. Statz discloses a coated plaque placed in a 3% sodium chloride solution and a potential was applied across the plaque and there was a formation of oxide that was then visually observed over a period of time between 48-72 hours (see column 5, lines 26-31). It is known in the art that when sodium oxidizes, there an opaque grey color formed when it is oxidized. It would have been obvious to one having ordinary skill in the art at the time the invention was made to place plaques of metal in a solution (either it be for testing or a control for comparison) and watch the solution to change color from clear to opaque to indicate a change in the chemical make up of the solution.

Regarding claim 10, the reference Shelley discloses the claimed invention except for placing a control specimen in a container, waiting for a length of time and determining if the presence of the coating is on the substrate. Statz teaches that it is known in the art to place a coated plaque in a solution of sodium chloride and apply a voltage to the solution to oxidize the solution, which turns an opaque color. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a control and testing sample where the solution turns an opaque color to

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determine the presence of a solution so when comparing there is a quick reference to see how much the coating is present.

10. Claims 4, 6 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shelley as applied to claim 1 above, and further in view of XP-002329830.

Regarding claim 4, the reference Shelley discloses the claimed invention except for observing a length of time for a test specimen of unknown coating to change color. XP-002329830 teaches that it is known in the art to place an aluminised steel sample in a solution of 10% sodium hydroxide and a metallic layer is visually determined by the presence of the color in the color of a matt dark grey tint (see abstract). It would have been obvious to one having ordinary skill in the art at the time the invention was made to place a sample or article in a solution and watch the sample change the color of the solution to indicate the presence of a coating or chemical.

Regarding claim 6, the reference Shelley discloses the claimed invention except for observing the control specimen. XP-002329830 teaches that it is known in the art to place a sample in a solution and observe the presence of a coating by observing if a matt dark grey tint appears to determine the presence of the intermetallic layer (see abstract). It would have been obvious to one having ordinary skill in the art at the time the invention was made to place a control and test sample in a solution and observe the

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color change to compare samples and determine if there is a greater presence of the coating by comparing the color darkness.

Regarding claim 8-9, the reference Shelley discloses the claimed invention except for placing a second specimen in a separate receptacle and waiting for the solutions in both the first and second specimen to change color or not. XP-002329830 discloses an aluminised steel sample immersed in a solution of sodium hydroxide and the outer layer of the coating is removed. When the layer is exposed there is a matt dark grey tint that can be visually (see abstract). It would have been obvious to one having ordinary skill in the art at the time the invention was made to immerse a control specimen and a test specimen in solutions to determine if a coating is present or remove a coating on a metal substrate like aluminum to compare an unreacted specimen to the sample specimen during a length of time to have the solution visually change the color of the solution.

11. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shelley and Statz as applied to claim 1 above, and further in view of XP-00239830.

Regarding claim 11, the references Shelley and Statz disclose the claimed invention except for observing a color change of the specimen to determine the presence or absence of the sol-gel coating. XP-00239830 discloses the presence of an intermetallic layer of an aluminised steel sample that has a matt dark grey tint and a base with a light color with a metallic sheen (see abstract). It would have been obvious to one having

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ordinary skill in the art at the time the invention was made to have control and specimen samples used to compare the presence of a coating by changing color after waiting a specific amount of time by visually verifying the change:

12. Claim 14 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over XP-002329830 as applied to claim 13 above, and further in view of Shelley.

13. Regarding claim 14, the reference XP-002329830 discloses the claimed invention except for detecting the presence of a sol-gel coating. Shelley discloses a method of measuring the thickness of sol-gel coating using infrared absorbance. In the determination of the thickness of the coating the time required to remove the sol-gel layer is determined and to specifically determine the thickness of a sol-gel coating is determined by infrared energy reflected from the metallic substrate without a sol-gel and with a sol-gel coating (see [0005] and [00008]). It would have been obvious to one having ordinary skill in the art at the time invention was made to determining the presence of a sol-gel coating on a metallic substrate by submersing the substrate in a solution and observing the color change of the solution rather than using infrared energy absorbed to visually see the change in color to indicate a coating rather than IR absorbance values at one specific wavelength to test for the thickness and presence of a sol-gel coating.

14. Regarding claims 16-17, the references XP-002329830 and Shelley disclose the claimed invention except for explicitly stating waiting for a specific amount of time where there is no change in color of the test specimen. XP-002329830 discloses immersing

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an alumined article in a solution of sodium hydroxide and waiting for the outer layer of the coating to be removed and changing the colour, specifically a matt dark grey tint (see abstract). It would have been obvious to one having ordinary skill in the art at the time the invention was made to determine the presence of a sol-gel coating by visually seeing the change in colour of the test specimen the article was immersed in where indicating no change in colour means no coating is present and change in colour, where a matt grey tint or even an opaque color, means a coating is present on the metallic substrate.

### ***Allowable Subject Matter***

15. Claims 12, 14, 16-17 and 18-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

16. Claims 27-44 are allowed.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine T. Mui whose telephone number is (571) 270-3243. The examiner can normally be reached on Monday-Friday 8-5; Alternate Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on (571) 272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CTM

Melvin Mayes  
*[Signature]*  
Primary Examiner  
AU1734